

No.

8400042



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

The J. C. Robinson Seed Co.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT OF 1942, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'CR1HT'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this *29th* day of March in the year of our Lord one thousand nine hundred and eighty-five.

Attest

Kenneth H. W.
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

John R. Block
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received. (5 U.S.C. 553).

| | | | | | |
|---|--|--|---|--|-----------------------------------|
| 1a. TEMPORARY DESIGNATION OF VARIETY 1-2-2-1 | | 1b. VARIETY NAME CRIHT | | FOR OFFICIAL USE ONLY PV NUMBER 8400042 | |
| 2. KIND NAME Yellow Dent Corn | | 3. GENUS AND SPECIES NAME <u>Zea mays</u> L. | | FILING DATE 1/17/84 | TIME 2:30 P.M. |
| 4. FAMILY NAME (BOTANICAL) <u>Gramineae</u> | | 5. DATE OF DETERMINATION January 1981 | | FEE RECEIVED \$ 1,000 \$ 500.00 | DATE 1/17/84 2/28/85 |
| 6. NAME OF APPLICANT(S) THE J. C. ROBINSON SEED CO. | | 7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) Waterloo, NE 68069 | | 8. TELEPHONE AREA CODE AND NUMBER 402-779-2531 | |
| 9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation | | | 10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Nebraska | | 11. DATE OF INCORPORATION 1904 |

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:

Dr. Frank D. Cloninger
THE J. C. ROBINSON SEED CO.
Waterloo, NE 68069

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☐ YES ☒ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☒ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☐ YES ☒ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

DEC. 29, 1983

(DATE)

J. C. ROBINSON SEED CO.

(SIGNATURE OF APPLICANT)

By:

Ernest [Signature]

(SIGNATURE OF APPLICANT)

VICE PRES - FINANCE

(DATE)

CRLHt was selected from (W117Ht x Mol7Ht) a cross of an early Wisconsin inbred and a full-season Missouri released inbred line. This line was developed by self-pollination and selection for early silking and agronomic type for six generations. At Waterloo, NE, CRLHt flowers four days earlier than A632. This inbred typically produces a moderate height plant with ear attachment in the lower half of the plant. Plants have moderate length, moderate width, upright leaves and moderate length ears.

Corn Application No. 8400042

- 13A. Four generations of uniformity and stability have been observed. Slight plant height variability was observed. (186-206 cm. plant height with 55-75 cm. ear height in one sampling of 100 plants.) Phenotype was very uniform from plant to plant. CR1Ht ears generally have straight rows for about two-thirds of the ear length and the tip in many cases will have irregular rows. A small number of ears with straight rows are found.

8400042

- 13B. CR1Ht characteristics are more like Mo17Ht than any other common variety. However, flowering is earlier in CR1Ht.

D A Y S F R O M P L A N T I N G

| | <u>50% POLLEN</u> | | | <u>50% SILK</u> | | |
|-------|-------------------|-------------|-------------|-----------------|-------------|-------------|
| | <u>1981</u> | <u>1982</u> | <u>1983</u> | <u>1981</u> | <u>1982</u> | <u>1983</u> |
| CR1Ht | 69 | 76 | 79 | 70 | 77 | 79 |
| Mo17 | 75 | 85 | 87 | 77 | 87 | 88 |

CR1Ht color is approximately one value darker on the Munsell color chart. The field sample we used of CR1Ht rated G4/4 and Mo17 rated G5/4. The leaf angle of CR1Ht is, in general, approximately 10° more upright than is Mo17Ht.

FDC/mrf
7/13/84

OBJECTIVE DESCRIPTION OF VARIETY
CORN (ZEA MAYS)

| | |
|--|--|
| NAME OF APPLICANT(S) THE J. C. ROBINSON SEED CO. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) Waterloo, NE 68069 | FOR OFFICIAL USE ONLY PVPO NUMBER 8400042 VARIETY NAME OR TEMPORARY DESIGNATION CR1HT R/S |
|--|--|

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g., 089 or 09) when number is either 99 or less or 9 or less.

1. TYPE:

1 = SWEET

2 = DENT

3 = FLINT

4 = FLOUR

5 = POP

6 = ORNAMENTAL

2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

1 = NORTHWEST

2 = NORTHCENTRAL

3 = NORTHEAST

4 = SOUTHEAST

5 = SOUTHCENTRAL

6 = SOUTHWEST

7 = MOST REGIONS

3. MATURITY (In Region of Best Adaptability):

(Under "comments" (pg. 3) state how
heat units were calculated)

DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK

HEAT UNITS

DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY

HEAT UNITS

DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE

HEAT UNITS

4. PLANT:

CM. HEIGHT (To tassel tip)

CM. EAR HEIGHT (To base of top)

CM. LENGTH OF TOP EAR INTERNODE

Number of Tillers:

1 = NONE

2 = 1-2

3 = 2-3

4 = > 3

Number of Ears Per Stalk:

1 = SINGLE

2 = SLIGHT TWO-EAR TENDENCY

3 = STRONG TWO-EAR TENDENCY 4 = THREE-EAR TENDENCY

Cytoplasm Type:

1 = NORMAL

2 = "T"

3 = "S"

4 = "C"

5 = OTHER (Specify)

5. LEAF (Field Corn Inbred Examples Given):

Color:

1 = LIGHT GREEN (HY)

2 = MEDIUM GREEN (WF9)

3 = DARK GREEN (B14)

4 = VERY DARK GREEN (B1)

Angle from Stalk (Upper half):

1 = < 30°

2 = 30-60°

3 = > 60°

Sheath Pubescence:

1 = LIGHT (W22)

2 = MEDIUM (WF9)

3 = HEAVY (OH26)

Marginal Waves:

1 = NONE (HY)

2 = FEW (WF9)

3 = MANY (OH7L)

Longitudinal Creases:

1 = ABSENT (OH51)

2 = FEW (OH56A)

3 = MANY (PA11)

Width:

CM. WIDEST POINT OF EAR NODE LEAF

Length:

CM. EAR NODE LEAF

NUMBER OF LEAVES PER MATURE PLANT

6. TASSEL:

0 9

NUMBER OF LATERAL BRANCHES

Branch Angle from Central Spike:

3

1 = $< 30^\circ$ 2 = $30-40^\circ$ 3 = $> 45^\circ$

Penduncle Length:

1 1

CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

3

1 = LIGHT (WF9)

2 = MEDIUM

3 = HEAVY (KY21)

1

Anther Color:

1 = YELLOW

2 = PINK

3 = RED

4 = PURPLE

5 = GREEN

5

Glume Color:

6 = OTHER (Specify) _____

Pollen Restoration for Cytoplasm (0 = Not Tested, 1 = Partial, 2 = Good)

0

"T"

0

"S"

0

"C"

OTHER (Specify Cytoplasm and degrees of restoration) _____

7. EAR (Husked Ear Data Except When Stated Otherwise):

1 6

CM LENGTH

0 4

MM. MID-POINT
DIAMETER

9 8

GM. WEIGHT

Kernel Rows:

2

1 = INDISTINCT

2 = DISTINCT

1 2

NUMBER

1

1 = STRAIGHT

2 = SLIGHTLY CURVED

3 = SPIRAL

Silk Color (Exposed at Silking Stage):

2

1 = GREEN

2 = PINK

3 = SALMON

4 = RED

Husk Color:

1

FRESH

1 = LIGHT GREEN

2 = DARK GREEN

3 = PINK

6

DRY

4 = RED

5 = PURPLE

6 = BUFF

Husk Extension: (Harvest Stage)

2

1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear)

3 = LONG (8-10CM Beyond Ear Tip)

4 = VERY LONG (> 10 CM)

Husk Leaf:

INCOMPLETE

1 = SHORT (< 8 CM)

2 = MEDIUM (8-15 CM)

3 = LONG (> 15 CM)

Shank:

0 9

CM LONG

10

NO. OF INTERNODES

Position at Dry Husk Stage:

1

1 = UPRIGHT

2 = HORIZONTAL

3 = PENDUL

Taper:

1

1 = SLIGHT

2 = AVERAGE

3 = EXTREME

Drying Time (Unhusked Ear):

3

1 = SLOW

2 = AVERAGE

3 = FAST

8. KERNEL (Dried):

Size (From Ear Mid-Point):

10 5

MM LONG

0 8

MM. WIDE

4 8

MM. THICK

Shape Grade (% Rounds)

2

1 = < 20

2 = 20-40

3 = 40-60

4 = 60-80

5 = > 80

FORM GR-470-28

8. KERNEL (Dried) :

☐ 1 Pericarp Color: 1 = COLORLESS 2 = RED-WHITE CROWN 3 = TAN 4 = BRONZE
5 = BROWN 6 = LIGHT RED 7 = CHERRY RED
8 = VARIEGATED (Describe) _____

☐ 1 Aleurone Color: 1 = HOMOZYGOUS 2 = SEGREGATING (Describe) _____

☒ 3 *R/S 12/14/84* 1 = WHITE 2 = PINK 3 = TAN 4 = BROWN 5 = BRONZE 6 = RED
7 = PURPLE 8 = PALE PURPLE 9 = VARIEGATED (Describe) _____

☒ 2 Endosperm Color: 1 = WHITE 2 = PALE YELLOW 3 = YELLOW 4 = PINK-ORANGE 5 = WHITE CAP.

Endosperm Type:

☐ 3 1 = SWEET (su1) 2 = EXTRA SWEET (sh2) 3 = NORMAL STARCH 4 = HIGH AMYLOSE STARCH
5 = WAXY STARCH 6 = HIGH PROTEIN 7 = HIGH LYSINE 8 = OTHER (Specify) _____

☐ 2 ☐ 4 GM. WEIGHT /100 SEEDS (Unsize Sample)

9. COB:

☐ 2 ☐ 1 MM. DIAMETER AT MID-POINT

Strength:

☐ 2 1 = WEAK 2 = STRONG

Color:

☐ 3 1 = WHITE 2 = PINK 3 = RED 4 = BROWN
5 = VARIEGATED 6 OTHER (Specify) _____

10. DISEASE RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

| | | |
|--|---|---|
| <input type="checkbox"/> 0 STALK ROT (Diplodia) | <input type="checkbox"/> 0 STALK ROT (Fusarium) | <input type="checkbox"/> 0 STALK ROT (Gibberella) |
| <input type="checkbox"/> 2 NORTHERN LEAF BLIGHT | <input type="checkbox"/> 0 SOUTHERN LEAF BLIGHT | <input type="checkbox"/> 0 SMUT |
| <input type="checkbox"/> 0 SOUTHERN RUST | <input type="checkbox"/> 0 CORN SMUT | <input type="checkbox"/> 0 BACTERIAL WILT |
| <input type="checkbox"/> 0 BACTERIAL LEAF BLIGHT | <input type="checkbox"/> 0 MAIZE DWARF MOSAIC | <input type="checkbox"/> 0 STUNT |
| <input type="checkbox"/> OTHER (Specify) _____ | | |

11. INSECT RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

| | | | |
|--|--|--------------------------------------|----------------------------------|
| <input type="checkbox"/> 1 CORNBORER | <input type="checkbox"/> 1 EARWORM | <input type="checkbox"/> 0 SAPBEETLE | <input type="checkbox"/> 0 APHID |
| <input type="checkbox"/> 0 ROOTWORM (Northern) | <input type="checkbox"/> 0 ROOTWORM (Western) | | |
| <input type="checkbox"/> 0 ROOTWORM (Southern) | <input type="checkbox"/> OTHER (Specify) _____ | | |

12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

| CHARACTER | VARIETY | CHARACTER | VARIETY |
|------------|---------|------------------|---------|
| Maturity | H99 | Kernel Type | W117 |
| Plant Type | Mo17 | Quality (Edible) | |
| Ear Type | Mo17 | Usage | W117 |

REFERENCES:

U.S. Department Agriculture. Yearbook 1937.

Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous Authors)

Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. 1935.

The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.

Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.

Butler, D.R. 1954 - A System for the Classification of Corn Inbred Lines - PhD. Thesis, Ohio State University.

COMMENTS: Heat Units Formula - High-Low -50 = Heat Units -- 86 as Maximum High
2 50 as Minimum Low

13 D.

CRLHt ear type has the cob characteristics of Mol7. For example, when broken there are silks running through the interior tubes of the cob. CRLHt ears generally have straight rows for about two-thirds of the ear length and the tip in many cases will have irregular rows.